REMARKS

Claims 6 to 17 have been amended. Claims 6 through 17 remain in the application. Re-examination and reconsideration of the application, as amended, are requested.

Claims 6 to 17 stand rejected under 35 USC 103(a) as being unpatentable over Mantl et al. (U.S. Patent 5,958,505). Reconsideration of this rejection in view of the amendments to the claims is respectfully requested.

In order to establish a case of obviousness under 35 USC 103(a) it is well established that:

"There must be some suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine the reference teachings. Second there must be reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach all the claimed limitations". See MPEP 2143.

With respect it is submitted that the Mantl et al. reference does not teach all of the limitations of the claims presented with this amendment. More specifically, the independent claims 6 and 12 include the limitation that the silicide regions form opposite side walls of the waveguide photodetector and further that they act as mirrors and electrodes for the photodetector. The process described by Mantl is intended to produce a layered structure for producing varied silicide regions. This is clearly shown in the figures for example Figure 4 which shows silicide regions in different vertical planes. There is no teaching in Mantl that would instruct one to build a waveguide photodetector in which the silicide regions form opposite sidewalls of the waveguide and in which the silicide region act as both mirrors and electrodes for the photodetector.

The Mantl reference describes a technique for forming silicide structures in silicon using a specific local oxidization to cause the silicide to penetrate into the silicon. The reference goes on to describe a number of device structures that can be made using this technique. However, none of the structures explicitly describe a waveguide photodetector as contemplated by the present invention.

The present application describes a concept and fabrication methods for a waveguide photodetector using silicides to form the electrodes of the photodetector and the Schottky electrodes at the same time confine light to the gap between the electrodes forming an effective waveguide. By keeping the light propagating between the electrodes the present design optimizes the conversion of photons to electrons. The photodetector presented in this application is essentially a Schottky barrier metal-semiconductor-metal (MSM) photodetector. The amended claims describe two process sequences to fabricate a waveguide photodetector, one using direct silicide formation to create electrodes and waveguide sidewalls while the second method uses a standard etch process to create the ridge waveguide

first after which the silicide electrodes are formed. Neither of these techniques use the local oxidization technique described by Mantl to form the waveguides. It is submitted, in fact that the local oxidation technique of Mantl would not be able to fabricate the MSN photodetector device described in the present application.

In view of the amendments to claims 6 to 17 it is believed that this application is now in condition for allowance. Reconsideration and allowance of claims 6 to 17 at an early date is earnestly solicited.

Respectfully submitted,

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